



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of

STACEY et al.

Serial No. 10/539,286

Filed: June 16, 2005

For: AN APPARATUS FOR CURING A COMPOSITE LAMINATE

Confirmation No.: 2638

Atty. Ref.: 540-571

Group: 1791

Examiner: Galen H. Hauth

APPEAL BRIEF

On Appeal From Group Art Unit 1791

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APPEAL BRIEF

Sir:

I. REAL PARTY IN INTEREST

The real party in interest in the above-identified appeal is Airbus UK Limited by virtue of the assignment of rights from the inventors to BAE SYSTEMS plc recorded June 16, 2005 at Reel 18085, Frame 376 and the subsequent assignment from BAE SYSTEMS plc to Airbus UK Limited recorded April 20, 2006 at Reel 17791, Frame 981.

II. RELATED APPEALS AND INTERFERENCES

There are believed to be no related appeals, interferences or judicial proceedings with respect to the present application, other than the Pre-Appeal Brief Request for Review previously filed in this appeal on June 24, 2009.

III. STATUS OF CLAIMS

Claims 1-7 and 12 stand withdrawn and claims 9-11 have been cancelled. The Examiner contends that with respect to remaining claims 8 and 13-21, that claims 8, 13, 17 and 21 are anticipated under 35 USC §102 in view of Charbonnet (U.S. Patent 5,209,881). The Examiner also contends that claims 14 and 17 are obvious under 35 USC §103 over Charbonnet in view of Whipple (U.S. Patent 6,132,084). The Examiner also believes that claims 16, 18 and 19 are obvious over charbonet in view of Schenck (U.S. Patent 4,463,437). The Examiner also alleges that claims 8, 13, 14, 15, 17, 20 and 21 are obvious over Handel (U.S. Patent 5,345,397) in view of Whipple. The Examiner contends that claims 16 and 18 are obvious under 35 USC §103 over Handel in view of Whipple in view of Schenck. The above rejections of claims 8 and 13-21 are appealed.

IV. STATUS OF AMENDMENTS

No further response has been submitted with respect to the Final Official Action mailed March 24, 2009 other than the filing of a Pre-Appeal Brief Request for Review which decision was mailed July 23, 2009.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' specification and figures provide an explanation of the claimed invention set out in independent claims 8 and 13, with each method step addressed as to its location in the specification and in the figures.

8. A method for curing composite material [test laminate 10 as shown in Figure 3 and discussed on page 6, lines 3-7 and elsewhere in the specification] including the steps of;

placing the material [10] in a temperature controlled vessel [an autoclave as discussed on page 1, lines 23-26 and elsewhere in the specification] and then,

curing the material [as discussed on page 5, lines 3-10 and elsewhere in the specification] and during the curing monitoring the taking temperature readings [as discussed on page 5, lines 12-24 and elsewhere in the specification] and monitoring the temperature of at least part of the material using an infra-red device remote from the material [infra-red camera 1 as shown in Figures 2a and 2b and discussed on page 4, lines 8-17 and elsewhere in the specification], and

processing the temperature readings and then adjusting the temperature of the vessel to maintain a constant curing temperature [page 5, lines 3-10 and 19-22 and elsewhere in the specification].

13. A method for curing composite material [test laminate 10 as shown in Figure 3 and discussed on page 6, lines 3-7 and elsewhere in the specification], said method including the steps of:

placing the material [10] in a temperature controlled vessel [an autoclave as discussed on page 1, lines 23-26 and elsewhere in the specification];

curing the material [as discussed on page 5, lines 3-10 and elsewhere in the specification];

during said curing step, monitoring the temperature of at least part of the material using an infra-red device remote from the material [infra-red camera 1 as shown in Figures 2a and 2b and discussed on page 4, lines 8-17 and elsewhere in the specification]; and

adjusting the temperature of the vessel to maintain a constant curing temperature [page 5, lines 3-10 and 19-22 and elsewhere in the specification].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 8, 13, 17 and 21 stand rejected under 35 USC §102 as being anticipated by Charbonnet (U.S. Patent 5,209,881).

Claims 14 and 17 stand rejected under 35 USC §103 as unpatentable over Charbonnet in view of Whipple (U.S. Patent 6,132,084).

Claims 16, 18 and 19 stand rejected under 35 USC §103 as being unpatentable over Charbonnet in view of Schenck (U.S. Patent 4,463,437).

Claims 8, 13, 14, 15, 17, 20 and 21 stand rejected under 35 USC §103 as unpatentable over Handel (U.S. Patent 5,345,397) in view of Whipple.

Claims 16 and 18 stand rejected under 35 USC §103 as unpatentable over Handel in view of Whipple in view of Schenck.

VII. ARGUMENT

Appellants' arguments include the fact that the burden is on the Examiner to first and foremost properly construe the language of the claims to determine what structure and/or method steps are covered by that claim. After proper construction of the claim language, the burden is also on the Examiner to demonstrate where a single reference (in the case of anticipation) or a plurality of references (in the case of an obviousness rejection) teaches each of the method steps recited in independent claims 8 and 13.

The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art

reference disclosure of each and every element of the claimed invention, arranged as in the claim."

Furthermore, the Court of Appeals for the Federal Circuit has stated in the case of *In re Rouffet*, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998)

to prevent the use of hindsight based on the invention to defeat patentability of the invention, this court **requires** the examiner to show a **motivation** to combine the references that create the case of obviousness. In other words, the Examiner **must show reasons** that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. (Emphasis added).

In its recent decision, the U.S. Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (April 2007), held that it is often necessary for a court to look to interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace and the background knowledge possessed by a person of ordinary skill in the art in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. The Supreme Court held that "[t]o facilitate review, this analysis should be made explicit." *Id.* at 1396.

The Supreme Court went on to say that it followed the Court of Appeals for the Federal Circuit's advice that "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness” (the Supreme Court quoting from the Court of Appeals for the Federal Circuit in *In re Kahn*, 78 USPQ2d 1329 (Fed. Cir. 2006)).

A. The Examiner fails to provide any rationale for the rejection of claim 17 under 35 USC §102

The Examiner in the Final Rejection rejects claims 8, 13, 17 and 21 under 35 USC §102 as being anticipated by Charbonnet. However, while there is a discussion of claims 8, 13 and 21, there is no allegation or discussion of the subject matter of claim 17 or where or how the Examiner believes that the method step limitation of claim 15 is anticipated by the Charbonnet reference.

Therefore, the allegation that claim 17 is anticipated by Charbonnet is completely unsupported and comprises reversible error.

B. The Examiner errs in not giving the method step of dependent claim 21 “patentable weight”

On page 4, section 3c of the Final Rejection, the Examiner indicates that the limitation “to determine the location and existence of voids during curing” is not given patentable weight. However, this statement is a misquote of claim 21, as the entire quote reads “wherein said method includes the step of monitoring the temperature of the material to determine the location and existence of voids during curing.”

As claim 21 further limits method claim 13 by reciting an additional method step, i.e., “monitoring the temperature,” claim 21 is a proper claim and the Examiner must give patentable weight to all method step recitations contained therein.

The Examiner’s admitted failure to give patentable weight to the limitations of claim 21 is reversible error and the rejection should be withdrawn.

C. The Examiner misapprehends the teachings set out in the prior art references

1. Independent claims 8 and 13 require “adjusting the temperature of the vessel to maintain a constant curing temperature”

The Examiner alleges that column 3, lines 54-56 of Charbonnet teach that it is “controlling the oven to have a constant cure temperature.” This is the Examiner’s conclusion, but it is unsupported by any cited portion of the Charbonnet reference. In point of fact, there is nothing in column 3, lines 54-56 which says anything about the oven having a “constant curing temperature” in the Charbonnet vessel.

Charbonnet is **only** concerned with locating and maintaining the gelation point in curing fiberglass reinforced plastic panels. Upstream of the gelation point, the glass fiber reinforced panels are mostly liquid and after the gelation point the panels are mostly solid. By definition the gelation point is the point at which polymerization occurs to change from liquid to solid. Charbonnet is concerned with adjusting the panel travel rate and the temperature of the panels so that the position

of the gelation point remains the same. This has nothing to do with maintaining a “constant curing temperature” of the panels.

The Examiner has been challenged throughout prosecution to demonstrate where or how there is any disclosure in the Charbonnet reference of monitoring temperature of the material and then adjusting temperature of the vessel (not the material) in order to maintain a “constant curing temperature.” The Examiner has in fact ignored the claim language requirements. The fact is that Charbonnet teaches only adjusting the infrared heating of the moving panel to maintain the gelation point at a desired location in the process.

Charbonnet specifically teaches away from maintaining a constant curing temperature because, in response to the sensed temperature of the material, it changes the infrared heaters to change the temperature of the material and not the temperature of the vessel (increasing the temperature of the infrared heaters only indirectly changes the temperature of the vessel).

2. The Examiner ignores the method step limitations of claim 21

As noted above, method claim 13 is further limited in claim 21 to the “step of monitoring the temperature of the material to determine the location and existence of voids during curing.” There is no mention or disclosure in Charbonnet that changes of the temperature of the material in the panel could provide any indication of the location and existence of voids during curing. In fact

Charbonnet monitors material temperature only to locate and maintain the position of the gelation point on the curing panels.

Again, the Examiner is specifically challenged to identify by the column and line number of Charbonnet where it contains the teaching of the additional method step set out in Appellants' dependent claim 21. Absent such specific teaching, the rejection of claim 21 is unsupported and is clearly erroneous.

D. The Examiner fails to substantiate his rejection of claims 8, 13, 17 and 21 under 35 USC §102

As noted above, in order to substantiate an anticipation rejection, all claim elements and claimed interrelationships between elements must be shown in a single reference. As noted in section C above, with respect to claims 8, 13 and 21, Charbonnet clearly fails to take and process temperature readings "to maintain a constant curing temperature." At best, Charbonnet only teaches maintaining a fixed position of the gelation point during the production process, but that point is not an indication of any "constant curing temperature.

As noted in Section A above, the Examiner provides no argument supporting his rejection of claim 17 and applicant is at a loss as to how or why the Examiner believes this claim is shown in Charbonnet.

As claimed all method steps in claims 8, 13, 17 and 21 are not present in Charbonnet and therefore the anticipation rejection is simply unsupported by the current evidentiary record.

E. The Examiner fails to set out a *prima facie* case of obviousness with respect to claims 14 and 17 over the Charbonnet/Whipple combination

Claims 14 and 17 depend directly from claim 13 and therefore all above discussions as to why claim 13 is not disclosed or rendered obvious in view of Charbonnet are herein incorporated by reference.

On page 5, lines 2 and 3, the Examiner admits “Charbonnet does not teach that the infrared device is located outside the vessel.” The Examiner also admits on page 5, in lines 19 and 20 that “Charbonnet does not teach that the temperature across the whole of the material is measured.” These admissions are very much appreciated.

Whipple reference teaches remote infrared radiation measurement to determine the temperature of material being cooked in a microwave oven. However, there is no allegation that Whipple teaches the portion of claim 13 which is admitted to be missing in the Charbonnet reference, i.e., “adjusting the temperature of the vessel to maintain a constant curing temperature.” In fact, as noted above (the comments relating to independent claims 8 and 13 are herein incorporated by reference), Charbonnet does not adjust the temperature of the vessel to maintain a constant curing temperature. Therefore, even if Whipple did teach locating an infrared device outside the vessel in order to monitor temperature of materials in the vessel, there is still no disclosure of adjusting the temperature of the vessel to

maintain a constant curing temperature. Therefore, claim 14 is clearly patentable over the Charbonnet/Whipple combination.

Moreover, the Examiner fails to identify any reason why one of ordinary skill in the art would think to combine Charbonnet and Whipple. Charbonnet does depend upon infrared heaters to heat its moving panels to promote curing of the fiberglass/resin composite mixture. The Examiner apparently does not appreciate that, in a microwave device such as Whipple, the temperature inside the microwave oven does not increase significantly during cooking. In fact, Whipple specifically teaches the submission of cooling air into the oven temperature which “keeps the chamber walls near ambient temperature (e.g., within a few degrees).” Thus, there is no measurement or adjustment of the temperature of the vessel in order to maintain a constant curing temperature. In fact, Whipple specifically teaches away from maintaining the temperature in the vessel at any constant curing temperature. .

Claim 17 specifies monitoring the temperature across the whole of the material. As noted above, while Whipple does suggest measuring the temperature of the object in the chamber (which is being microwaved), this does not render obvious the subject matter of claim 13 from which claim 17 depends, i.e., the claim 13 step of “adjusting the temperature of the vessel to maintain a constant curing temperature.” The temperature of the air inside the vessel in Whipple is cooled by the cooling air and has nothing to do with the temperature measurements of the material in the Whipple oven. In fact, the measured temperature in the Whipple oven does not have

anything to do with adjusting the temperature of the vessel. Applicant challenges the Examiner to indicate how the air in the vessel of Whipple is heated by microwaving.

As a consequence, there is no reason to combine Charbonnet and Whipple and, even if combined, the invention of independent claim 13 and claims 14 and 17 dependent thereon, is not disclosed.

F. The Examiner fails to set out a *prima facie* case of obviousness with respect to claims 16, 18 and 19 over the Charbonnet/Schenck combination

In as much as claims 16, 18 & 19 all depend from claim 13, the above comments regarding the Charbonnet reference failing to teach or render obvious the claim 13 method is herein incorporated by reference.

Because Charbonnet fails to teach “a constant cure temperature” and Schenck teaches only an infrared camera system, the combination still fails to teach the claimed combination of method steps for creating a “constant cure temperature.” While Charbonnet and Schenck teach components which could be combined, there is no evidence of record that there is any reason or motivation to pick and chose those components and then combine them in the claimed manner.

The present obviousness rejection is similar to the Examiner calling the Gettysburg Address obvious because each of the words is used in its known manner. Of course all words are used for their normal definition and in their known manner, yet, they were combined in a non-obvious manner to form the

Gettysburg Address. Surely, the Examiner does not contend that the Gettysburg Address is obvious?

Here, there is no reason or rationale supporting the Examiner's combination of elements from the various references and therefore, no *prima facie* basis for rejection has been set out.

G. The Examiner fails to set out a *prima facie* case of obviousness with respect to claims 8, 13, 14, 15, 17, 20 and 21 over Handel in view of Whipple

Claims 8, 9, 13, 14, 15 and 17 stand rejected under 35 USC §103 as unpatentable over Handel (U.S. Patent 5,345,397) in view of Whipple. The Examiner's admission on page 8, section (a) that "Handel does not teach that the control system comprises an infrared device remote from the material" is very much appreciated.

Whipple is not a temperature controlled vessel (it heats the material by microwaves which do not heat the inside of the vessel), although the autoclave of Handel clearly is. While the Examiner uses the phrase "control system" (page 8, lines 3-4), this language is not part of Applicants' independent claim 8.

Additionally there is still no reason as to why one of ordinary skill in the art would pick and choose elements from the Handel and Whipple references and then combine them in the manner of Applicants' claims. The Handel and Whipple patents do not operate in the same fields (Handles heats the material by heating the

inside of the autoclave and Whipple heats the material directly by microwaves) and, while the Handel vessel is temperature controlled, the Whipple device teaches the direct opposite and is not a temperature controlled vessel.

The Examiner has simply failed to meet his burden of providing some reason or rationale for picking and choosing elements from the Handel and Whipple references, disregarding the contrary teachings and then combining them in the manner of Applicants' independent claims 8 and 13 or claims dependent thereon.

H. The Examiner fails to set out a *prima facie* case of obviousness with respect to claims 16 and 18 over Handel in view of Whipple and further in view of Schenck

In as much as the rejection of claims 16 and 18 depends from claim 13, the above comments based upon the erroneous basing of the rejection of claim 13 as obvious over the Handel/Whipple combination are herein incorporated by reference. Further, it is noted that the Examiner doesn't allege that the Schenck patent supplies the features of claim 13 which were alleged to be missing from the Handel/Whipple combination. Accordingly, even if Handel, Whipple and Schenck were combined as suggested by the Examiner, they do not disclose the method steps of claims 16 & 18.

Moreover, the Examiner does not provide any analysis as to why one of ordinary skill in the art would pick and choose method steps from the dissimilar

references and then combine them in the manner disclosed only in the present specification.

VIII. CONCLUSION

The Examiner has failed to properly support his rejection of a claim (claim 17), failed to give patentable weight to a claim limitation (claim 21), has misunderstood the Charbonnet reference (claims 8 & 13) and has failed to support his anticipation rejection of the claims. He has further failed to establish a *prima facie* case of obviousness because all claim elements are not shown to exist in the combinations or references and there is no “analysis” of any reason for combining references in the rejections of claims 8, 13-21.

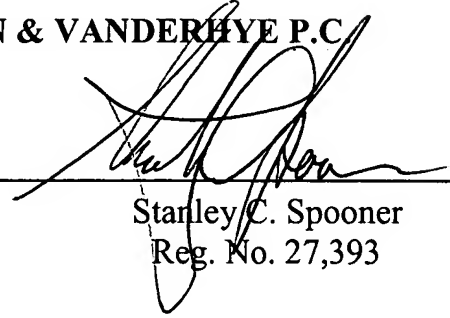
As a result of the above, there is simply no support for the rejections of Applicants' independent claim or claims dependent thereon under 35 USC §1102 or §103. Thus, and in view of the above, the rejection of claims 8 and 13-21 under 35 USC §102 and/or 103 is clearly in error and reversal thereof by this Honorable Board is respectfully requested.

STACEY et al
Serial No. 10/539,286

Respectfully submitted,

NIXON & VANDERHYTE P.C

By: _____

A handwritten signature in black ink, appearing to read 'Stanley C. Spooner', is written over a horizontal line.

Stanley C. Spooner
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SCS:kmm
Enclosure

IX. CLAIMS APPENDIX

1. (withdrawn) An apparatus for curing composite material including a temperature controlled vessel in which the material is placed during curing and an infra-red temperature measuring device located remotely from the component to measure the temperature of at least part of the material during curing.

2. (withdrawn) An apparatus according to claim 1 wherein the measuring device sends temperature information to a system for controlling the temperature of the vessel which processes the information and changes the temperature of the vessel as necessary.

3. (withdrawn) An apparatus as claimed in claim 1 wherein the measuring device is located within the vessel.

4. (withdrawn) An apparatus as claimed in claim 1 wherein the measuring device is located outside the vessel.

5. (withdrawn) An apparatus as claimed in claim 1 wherein the temperature controlled vessel is an autoclave.

6. (withdrawn) An apparatus as claimed in claim 1 wherein the infra-red temperature measuring device is a camera.

7. (withdrawn) An apparatus as claimed in claim 1 wherein the temperature across the whole of the material is monitored.

8. (previously presented) A method for curing composite material including the steps of;

placing the material in a temperature controlled vessel and then,

curing the material and during the curing monitoring the taking temperature readings and monitoring the temperature of at least part of the material using an infra-red device remote from the material, and

processing the temperature readings and then adjusting the temperature of the vessel to maintain a constant curing temperature.

9. (cancelled).

10. (cancelled).

11. (cancelled).

12. (withdrawn) An apparatus for curing composite material including:
a temperature controlled vessel in which the material is placed during curing; and an infra-red temperature measuring device located remotely from the component to measure the temperature of at least part of the material during curing, wherein the measuring device sends temperature information to a system for controlling the temperature of the vessel which processes the information and changes the temperature of the vessel as necessary.

13. (previously presented) A method for curing composite material, said method including the steps of:

placing the material in a temperature controlled vessel;

curing the material;

during said curing step, monitoring the temperature of at least part of the material using an infra-red device remote from the material; and

adjusting the temperature of the vessel to maintain a constant curing temperature.

14. (previously presented) A method for curing composite material as claimed in claim 13 including the step of locating said infra-red device outside the vessel.

15. (previously presented) A method for curing composite material as claimed in claim 13 wherein the temperature controlled vessel is an autoclave.

16. (previously presented) A method for curing composite material as claimed in claim 13 wherein the infra-red temperature measuring device is a camera.

17. (previously presented) A method for curing composite material as claimed in claim 13 wherein said monitoring step includes monitoring the temperature across the whole of the material.

18. (previously presented) A method for curing composite material as claimed in claim 16, wherein said camera for monitoring the temperature across the whole of the material is moveably mounted for allowing larger structures to be monitored by one camera.

19. (previously presented) A method for curing composite material as claimed in claim 16. wherein said method includes the steps of:

selecting specific points on the component for taking readings; and
directing said camera to the selected specific points.

20. (previously presented) A method for curing composite material as claimed in claim 13. wherein said method includes the step of monitoring the temperature of the vessel prior to and during curing of the material.

21. (previously presented) A method for curing composite material as claimed in claim 13. wherein said method includes the step of monitoring the temperature of the material to determine the location and existence of voids during curing.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.